

IN THE CLAIMS:

The following is a listing of the claims in the present application with claim 1 shown as currently amended.

LISTING OF CLAIMS

1. (Currently Amended): A micelle composition for drug delivery system comprising an amphiphilic block copolymer having at least one hydrophilic blocks(A) and at least one hydrophobic blocks(B), ~~wherein the block copolymer carries~~ wherein at least one repeating unit of said hydrophobic block of said amphiphilic block copolymer includes active hydrogen-containing functional groups is selected from the group consisting of carboxyl, amine, hydroxyl, amide, thiol and sulfonic acid groups, wherein (z) represents the repeating units of said hydrophobic block carrying said functional groups and is in a range of 1.1 to 30, and wherein (y) represents the number of repeating units of the hydrophobic block not containing the functional group, and (y) is correlated to (z) such that a ratio, z/y , is in the range of 0.015 to 2 in the hydrophobic block chain of the copolymer, and the average number of the functional groups range from 1.1 to 30.

2. (Original): The composition of claim 1, wherein the amphiphilic block copolymer is present in an amount ranging from 0.1 to 10 % by weight, based on a total weight of the micelle composition.

3. (Original): The composition of claim 1, wherein a molecular weight of the hydrophilic block is 100 to 30,000 Da.

4. (Previously Presented): The composition of claim 1, wherein the hydrophilic block(A) is polyethyleneoxide or methoxypolyethyleneoxide.

5. (Original): The composition of claim 1, wherein a molecular weight of the hydrophobic block(B) is 200 to 30,000 Da.

6. (Original): The composition of claim 1, wherein the amphiphilic block copolymer is a diblock polymer of the hydrophilic block(A)-hydrophobic block(B) type, or a triblock polymer of the hydrophobic block(B)-hydrophilic block(A)-hydrophobic block(B) or hydrophilic block(A)-hydrophobic block(B)-hydrophilic block(A) type.

7. (Original): The composition of claim 1, wherein the hydrophobic block is selected from the group consisting of polylactide, polycaprolactone, polyglycolide, a copolymer of lactide and glycolide, Polyorthoester, polyanhydride, polyphosphazine, poly amino acid, a mixture thereof, and a derivative thereof.

8. (Original): The composition of claim 1, wherein the amphiphilic block copolymer is represented by formula (I):

wherein R_1 is H, C_{1-4} alkyl or C_{1-4} acyl;

R_2 is H, C_{1-9} alkyl, aryl or C_{1-9} arylalkyl;

x is a number ranging from 10 to 400;

y is a number ranging from 10 to 300;

z is a number ranging from 1.1 to 30; and

W is selected from the group consisting of carboxyl, amine, hydroxyl, amide, thiol and sulfonic acid groups.

9. (Original): The composition of claim 8, wherein W is a carboxyl group.

10. (Original): The composition of claim 8, wherein a ratio z/y ranges from 0.015 to 2.

11. (Original): The composition of claim 10, wherein the ratio z/y ranges from 0.02 to 1.5.

12. (Original): A pharmaceutical composition comprising a hydrophobic drug introduced in the hydrophobic block(B) of the micelle composition according to any one of claims 1 to 11.

13. (Original): The composition of claim 12, wherein the drug is selected from the group consisting of paclitaxel, camptothecin, biphenyl dimethyl dicarboxylate, piposulfan, danazole, taxotere, adriamycin, indomethacin, etoposide, itraconazole, nystatin, hemoglobin and omeprazole.

14. (Original): The composition of claim 12, wherein the drug is present in an amount ranging from 0.1 to 5% by weight, based on the total weight of the micelle composition.

15. (Previously Presented): The composition of claim 3, wherein the hydrophilic block(A) is polyethyleneoxide or methoxypolyethyleneoxide.